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## NOTES ON THE ZOOLOGY OF MANITOBA.

BY THE LATE T. B. WOOD.

(Communicated by T. H. NELSON.)

(Concluded from p. 227).

August 11th.—Last week I got five Shovellers, two Black Terns, and an unknown Duck; also paid another visit to the Terns' colony. The Black Tern is first seen in great numbers about the 20th or 21st of June, and is then in full summer dress, with black breast, head and throat, and dark grey back. The greatest numbers were found fifteen miles south-west of Brandon round some large swamps, one of which is about a mile long and half-a-mile broad. The birds there are as "thick" and noisy as those we saw at the Farne Isles; hundreds were flying over every small pond or slough, had several pairs hovering about, and the air was filled with their cries. I paid a second visit to this place in July, and again on August 6th, when I found great numbers still there, and shot two specimens; they were changing plumage and losing the black on the head and breast. The feet of this Tern are only partially webbed. I never noticed them taking food as other Terns do, but the swamps are full of long grass and reeds, choking up the place, so that even if the birds are feeding it is impossible to observe what they are taking. Ducks, Curlews, Cranes, and other birds are now constantly passing over, showing that the migratory season has commenced.

August 18th.—About the middle of the month I drove out about fifteen miles south-west, and had a good time amongst the

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wildfowl; my bag was made up of seven Blue-winged Teal, one Green-winged Teal, four Shovellers, two Pintails, one Mallard, one nondescript, two Bitterns, four Yellowshanks, one Coot, one large Hawk, one Grebe, two Black Terns, and a Grey Shrike. One of the Terns was in full plumage, with coal-black head and breast, back and tail grey, under tail-coverts and thighs white. We got a Duck in a rather curious manner. I saw a Falcon suddenly drop into a bed of reeds, so walked up until I got within a few yards of the spot, when he rose and I knocked him over; he had struck a Shoveller, which I picked up, more frightened than hurt. I could have killed any number of Sandpipers, Yellowshanks, and Snipe, but as cartridges are precious here, I am obliged to be rather careful of my ammunition.

September 1st.—Late in August I was out at Badger Hill for two days, and had fair sport with the Ducks and Prairie Chickens, getting eighteen brace of the latter. I also shot two large Hawks, a Woodpecker, a Grackle, and a Thrush. One day we drove within thirty yards of two Deer, but did not get a shot; on the same day we saw a two-year old Bear. The heat is still very oppressive, nearly as bad as it has been all through the summer; for the last fortnight it has been 114° in the shade. I saw the first flight of Geese this week (end of August) going south.

September 25th.—In the middle of this month I was again at Badger Hill, and added to my collection two Peregrines, a Bittern, several small Hawks, and three kinds of Woodpeckers, and saw many other birds too numerous to mention. Bitterns were very common, and are capital eating. We had a few days' fishing, and caught some good sized pike, ten pounds to twelve pounds in weight. The weather has changed considerably, and winter is fast coming on; the nights are bitterly cold, with hard frosts. Large flocks of Shore Larks are flying about Brandon, and small birds something like a Black Redstart. Of the two Peregrines I shot, one was when I was out looking for my ponies: I was watching a flock of Sandpipers when the Falcon made a dash at one of them; the Sandpiper at once ran into a pool close by and ducked under; of course the Peregrine missed his aim, but I did not miss mine. The other Peregrine I caught asleep on a tree! I got within 100 yards of a magnificent eagle one day, but had not my rifle near; on the same day I

drove close to a Prairie Wolf, which calmly looked at me for a while and then galloped off.

October 8th.—There has not been much shooting during the early part of October. I generally have a drive along the river, which swarms with Ducks. I have secured an American Wigeon, and fired at an Eagle on the 4th, but lost it among some timber.

November 4th.—Ducks are beginning to leave us now, and are going south, but there is still pretty good shooting. I got a Short-eared Owl one morning on going out before breakfast; there was evidently a migration of these birds going on, for they rose at every few yards from out of the long grass, just as they do on the sand-hills at Redcar. The country is now covered with snow, but the days are very delightful, and more enjoyable than during the heat of summer with mosquito plagues. I hear Moose are to be had down at the Souris, so am going there soon. Snow Buntings mingle with the Shore Larks in the streets, and are as tame as our English Sparrows.

November 16th.—The weather is still very cold, and the thermometer registers 20° below zero. I saw a very fine Ermine to-day. Foxes and Wolves are increasing in numbers and boldness. We get an animal like a Mountain Hare here, which turns white in winter [*Lepus americanus*].

December 25th.—About the end of this month there was a fearful snow-storm, and the snow now lies thick on the ground; the cold is still intense, 20° below zero. My bag of eatable birds this season has been about 300, and includes 129 Ducks, 119 Prairie Chickens, and 14 Bitterns.

January 24, 1883.—It is heavy work shooting in the snow, but I managed about the middle of the month to bag a brace of Ruffed Grouse; they sit in the bushes, and you may almost knock them over with a stick. I also secured a Tanager [*Pyrrhuloxia rubra*], very like the American Grosbeak; the bill is black, head, breast, and back crimson: wings black and white, and tail black, size about equal to a Hawfinch. There was a pair of them, and I secured the male. On the same day I got a large Shrike and some very good Snow Buntings.

February 22nd.—About the beginning of the month I shot another Tanager, and a third towards the middle of the month. About the 10th I was going out with the gun, when I saw a large bird coming straight over me, about sixty yards high. I gave it

a charge of No. 2 and down it came. Imagine my delight, when I picked up a splendid male Snowy Owl, pure white, except for three black marks on the wings. The weather is not quite so severe now,—10° below zero, and I have ventured out wolf-shooting, but have not been successful hitherto. One day I saw a few Tits and Redpolls.

March 5th.—At the beginning of this month I shot another Snowy Owl, a female, in speckled plumage. It has snowed heavily for some days, and the Wolves are very daring. I have secured a few, and am tanning the skins for mats.

March 11th. — Towards the middle of the month the weather became milder. We shall all be glad when the snow disappears and the grass becomes visible again.

April 25th.—The spring migration commenced this year almost a fortnight earlier than usual. Ducks put in an appearance on April 13th, and by the 15th large flocks of both Ducks and Geese passed over. The spring duck-shooting is preferable to that in the fall; the birds are in so much finer plumage, and the weather, too, is more bearable. I append a few dates of spring observations, which will give a slight idea of what we see here:—March 20th, Shore Larks appear; snow still covering prairie and sleighing good. April 10th, saw two Crows and a Marsh Harrier; snow melting fast, trail very bad. 12th, two Ducks going W.; trails broken up, sleighing over. 13th, a Mallard shot. 14th, large numbers of Marsh Harriers from 9 a.m. till 1 p.m., a continuous flight going W.; also a few Yellowshanks and Crows. 15th, Marsh Harriers going W. 16th, large flocks of Ducks and Geese going W., also Marsh Harriers sailing over the sloughs, and a few small birds appearing; small Hawks passing; snow almost all gone. 17th, Ducks going W.; Marsh Harriers sailing about; shot at a Yellowshank; large flights of summer visitors appearing. 18th, a snow storm; shot two Mallards, saw a Yellowshank; tried to stalk a Goose on the ice on the river, but failed; saw a Short-eared Owl. 19th, shot a Mallard; saw Pintails, and a friend shot a Marsh Harrier. 20th, saw Robins and Black Grackles [*Scolecophagus ferrugineus*] in large flocks, also a few Pintails and one flock of Green-winged Teal; a Goose shot; a friend shot a male Scaup and a Green-winged Teal. 21st, I shot three Mallards and a Green-winged Teal; a friend shot a Snipe; saw a Peregrine and several Snipe.



22nd, saw two Sand-hill Cranes going N. 23rd, ice on the river breaking up. 24th, a friend shot a male Pintail; river almost clear. 25th, Anemone in flower; grass showing green.

May 9th.—About the end of April I saw a Woodpecker, and shot a fine Buffel-headed Drake—a grand specimen. On the 28th I observed a Ring Plover [*Ægialitis semipalmatus*]. On the 29th shot a Pochard; saw numbers of Snipe, Sand-hill Cranes, Martins, and a Short-eared Owl, also a butterfly like a Camberwell Beauty. Early in May I got specimens of Meadow Larks [*Sturnella magna*], Red-winged Starlings, and Buntings; and on the 8th saw eight Lesser Yellowshanks [*Totanus flavipes*]. By the first week of May most of the Ducks had arrived, but the large flights of Blue-winged Teal had not yet appeared. Thus far the Ducks noticed this spring are Mallard, Pintail, Shoveller, Scaup, Pochard, Buffel-head, Blue-winged Teal, Green-winged Teal, Wood Duck, Butter Duck (Buffel-head), American Wigeon (called "Summer Duck" by the Indians), and a Duck very like a Scaup, which I am not able to identify. [Probably the American Scaup, *Fuligula affinis*.—ED.] Two friends of mine were away shooting in the second week of May, and brought home (amongst other birds) three Sclavonian Grebes, an Esquimaux Curlew [? footnote, p. 226], and a Canvas-back Duck.

May 25th.—The close time begins on May 15th for all kinds of wildfowl, so I had a last day before the season ended; my bag was thirty-seven head, including four Plover, a Buzzard, Bittern, and two species of Grebe, ten Eared and Sclavonian Grebes. Since then I got a Golden Plover in full summer plumage, and a Ring Dotterel exactly like our Tees-mouth friend; when I picked it up I could almost imagine myself at Redcar again. [Doubtless *Ægialitis semipalmatus*.—ED.] A great many Gulls passed over here about the middle of May, and I also heard that the Black Terns had arrived at their breeding-quarters. The Blue-winged Teal is now in great force; in fact, most of the summer birds have arrived. The weather now (end of May) is very hot, and the mosquitoes are beginning to be troublesome. Last evening I saw a Goatsucker and heard the Whip-poor-Will.

June 4th.—Early in June I had a ramble out to the Brandon Hills, eight miles south of here. I discovered a lake, about a mile long by about half-a-mile broad, full of Ducks; it is right amongst the hills, which are clothed with woods on two sides of

the lake. I was looking for the Wood Duck, but not seeing any on the lake did not disturb the fowl there. In wandering through the woods I spied a mighty nest of large twigs in a tree on the edge of the lake. On my approach a bird flapped off, and I promptly shot it, when I found it to be a fine Red-tailed Buzzard; I skinned it, as also a Yellow-headed Grackle (?) which I shot.

June 20th.—In the middle of June I was out at Plum Creek, thirty miles S.W., where I added a few birds to the collection. Amongst others I got three Phalaropes, a few Black Terns (of which there were large numbers), and a very good Bar-tailed Godwit, *Limosa foeda*, which I found breeding there. I also found numbers of Ducks' nests, the eggs all incubated, except two Blue-winged Teal's. A Black-headed Gull was following the plough just as they do in Northumberland. In the first week of July I noticed a flock of these Gulls flying round, screaming and coming quite close to where I was standing. They appear to be very like our English Black-headed Gull, but I did not manage to get a specimen for identification; they breed on some large lakes or sloughs round Portage. I shot a couple of Dunlins in Brandon one day, and so have added this species to my collection. The eggs of many birds which are considered rare in England are easily obtainable here, viz., Marsh Harrier, Shore Lark, Buzzard, Ducks of various species, Black Tern, Bar-tailed (Marbled) Godwit, Bartram's Sandpiper, Yellowshanks, and many others. I shot a Killdeer Plover [*Ægialitis vociferus*] about the second week in July, and took the eggs.

August 5th.—The close time for Ducks and Prairie Chickens has been extended to September 1st, but I went out on the 1st of August, and shot a few Killdeer and Upland Plover (Bartram's Sandpiper). I also shot three small Sandpipers from a flock of about a dozen; they are very like a Dunlin, but the breast shows no signs of any black feathers, and I have shot similar specimens in June; they are also smaller than the Dunlin. [They may have been Bonaparte's, or Baird's Sandpiper.—ED.]

August 25th.—H. had a day's shooting about the middle of the month, and bagged seventy head, including fifty-two Ducks. I have reared a tame Bittern, a fine handsome full-grown bird now; he seems very fond of frogs, small birds, and insects; it takes me nearly all my time to supply him with food. On the

20th I heard that a Gyr Falcon had been observed; at the same time a friend of mine caught two young Canada Geese down by the river. You have no idea what a place this is for birds. I am often lying outside the tent, smoking, when perhaps a pair of Marsh Harriers will come sailing past; then a big Buzzard will perch about fifty yards away and remain motionless for hours, in spite of my firing my catapult at him; then a flight of Ducks passes over, or perhaps a few Sand-hill Cranes, or Geese, Passenger Pigeons, &c. This is an ordinary occurrence, and if I take the trouble to get my gun and walk down to a slough a quarter of a mile away, I am sure to flush Sandpipers, Plovers, Snipe, Yellowshanks, and other waders, a few Ducks, or perhaps a couple of Water Rails or a Bittern, and see the Musk Rats swimming and diving in all directions. I am getting almost indifferent now to the sight of so many birds, and rarely shoot one unless it be something uncommon.

September 16th.—Three guns had good sport early in this month; they got 600 head in five days, mostly Duck, Snipe, and Prairie Chickens. Amongst the dead I found another species of Phalarope, smaller than those I got previously; it is in autumn plumage. [Possibly the Red-necked Phalarope.—Ed.] There were also several species of small waders, but I was too late to save them. Prairie Chickens are scarce this season, owing no doubt to the settlers shooting them during the close time. Amongst the birds I have got lately are Scaup, Grebes, Kingfishers, Blue Jay, Velvet Scoter, and Peregrine. Hawks are particularly abundant this autumn, especially Marsh Harriers, but I rarely take the trouble to shoot at one now.

October 12th.—Winter is coming on fast, and the wildfowl are leaving us for the south. I have shot eighty Ducks in three days during the early part of this month. Snipe are still plentiful, but will soon be leaving. I have seen several Mergansers and Buffel-heads, and secured one of the former for the collection. The other day I saw a Pelican [*Pelecanus trachyrhynchus*] exposed for sale in a shop; it was shot in South Manitoba, and measured eight feet from tip to tip of the wings. I have added to my store a Little Crake, which I shot out of a reed-bed early this month; it is the first of the kind I have ever seen here.

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NOTES ON THE VERTEBRATE ANIMALS OF  
LEICESTERSHIRE.BY MONTAGU BROWNE, F. Z. S.  
Curator, Town Museum, Leicester.

(Continued from p. 220).

## Order UNGULATA.—Family ELEPHANTIDÆ.

Amongst extinct species, remains of Elephants occur in the post-tertiary river gravels lying above, or at some distance from, the present river-beds of the county. At Belgrave, a suburb of Leicester, river gravels occur (probably post-glacial) in which are frequently found bones and teeth of Elephants, &c., usually resting on the under-lying Keuper marls.

*Elephas primigenius*, Blumenbach. Mammoth.—A remarkably fine tusk of one of these extinct pre-glacial Elephants was found in October, 1865, in Sydney Street, Belgrave Road, Leicester, eleven feet from the surface, in the drift gravel, and resting upon the upper Keuper marls. It measured *in situ* nine feet on the curve, but being extremely friable, in spite of the utmost care, some portion of it was lost. The remaining portion, after being skilfully treated by Mr. J. E. Weatherhead, the then Curator, found a resting-place in the Town Museum, where it still remains. Its measurements are:—Length of curve, 6 ft. 2 in.; circumference, 2 ft.; diameter, 8 in. A portion of a smaller, but longer, tusk was found a year or so afterwards in the drift in Hutchinson's gravel-pit, Sydney Street, Belgrave Road. The Belgrave river-gravels have also furnished numerous bones and teeth, many of which are shown in the Leicester Museum. The late Dr. Leith Adams, in his beautiful monograph on "Fossil Elephants" (Palæontographical Society, 1877-81), figures profile and crown views of a left upper last true molar, from Kirby Park, Melton Mowbray, marked No. 35 in the Woodwardian Museum, Cambridge.

*Elephas antiquus*, Falconer. Ancient Elephant.—Mr. W. J. Harrison, in his 'Geology of Leicestershire,' has recorded the finding of a complete skeleton of this species at a depth of six feet, resting on lias clay at Barrow-on-Soar. Unfortunately but two or three fragments could be preserved. Dr. Leith Adams also has noticed the occurrence of this species at Barrow-on-Soar.



The Leicester Museum possesses two teeth—one from Barrow-on-Soar, and the other, a remarkably fine one, from Thorpe Arnold. These were originally both labelled *E. primigenius*, but, suspecting that they were referable to *E. antiquus*, I took the opinion of Mr. R. Etheridge, F.R.S., of the British Museum (Nat. Hist.), who kindly settled the matter by confirming my impression.

#### Family RHINOCEROTIDÆ.

*Rhinoceros tichorhinus*, Cuvier. Extinct Hairy Rhinoceros.—A few bones and numerous teeth of this extinct species have been found in the Belgrave and other gravels with the remains of Elephants. The Museum possesses a fine series of teeth from Belgrave and Thurmaston.

#### Family BOVIDÆ.

*Bos primigenius*, Bojanus. Extinct Wild Ox.—Bones of the fore and hind limbs, the pelvic girdle, teeth, and nearly perfect crania with horn-cores attached, have been found in excavations in the post-tertiary gravels. One fine skull with horn-cores attached—from the Abbey Meadow, 1880—is in the Town Museum. A fine left metacarpus, very much larger than that in existing cattle, was discovered in post-tertiary gravel at Willow Bridge in September, 1881, by Mr. J. Hay, who sent it to me for identification, and afterwards kindly presented it to the Museum. A large horn-core from Archdeacon Lane, discovered some years since, and having about one-third of its length broken, measures in girth, just above burr, nearly 14 inches, and, at 7 inches above that point, nearly 11 inches.

*Bos longifrons*, Owen. Extinct Long-faced Ox.—A nearly perfect skull with horn-cores attached, found in the Abbey Meadow, is in the Leicester Museum. It is always exceedingly difficult, in such a town as Leicester, inhabited as it has been by man from a period long anterior to the Roman occupation, to draw the line between bones of the oxen of historic and those of pre-historic times; but there is, I think, no doubt that many of the specimens found in Leicestershire may be, from their peculiarities and the position in which they are found, fairly credited to one or the other of the two pre-historic cattle mentioned. On the other hand, in the case of the *Equidæ* (Horse, Ass, &c.), whose remains are so constantly found in

Leicester, I have, as yet, been unable to claim for them a higher antiquity than that of historic times.

#### FAMILY CERVIDÆ.

*Cervus elaphus*, Linn. Red Deer. — Semi-domesticated in a few parks in the county; nowhere more numerous than at Bradgate Park, the seat of the Earl of Stamford, where it breeds. Nothing apparently is known of its introduction, and it is extremely probable that the deer now to be seen there may be the descendants of ancient herds which formerly ranged at large in the Forest of Charnwood, of which Bradgate once formed part. Some interesting figures of these deer are given in a book written about 1840, by a Mr. John Martin, of Steward's Hay, entitled 'Sketches of Deer, in Bradgate Park, by an amateur.' A fine specimen of a "Royal Stag" was shot at Bradgate in 1881, expressly for the Museum, for which it was subsequently mounted. Horns and bones, those of the limbs especially, of an ancient race of *C. elaphus*, much larger than corresponding bones and horns of the existing type, are occasionally found. These, if not pre-historic, are certainly of great antiquity, probably contemporary with those of the Wolf and Wild Boar. The Leicester Museum possesses a portion of a fine right antler dug up at the North Bridge (marked No. 519), the measurements of which are—Circumference above "burr," 9 in.; inside curve of "brow" antler,  $11\frac{1}{2}$  in.; length of "bay," broken at extremity, 10 in.; "tray" absent; circumference below tray, 6 in.; length from burr to end of broken "beam," 22 in. Another perfect left antler of 8 points from the Abbey Meadow (No. 287), measures—Circumference above burr,  $7\frac{3}{4}$  in.; inside curve of brow antler,  $10\frac{1}{2}$  in.; ditto bay, 9 in.; ditto tray, 7 in.; crown (of five) from point to point, 14 in.; length from burr to end of beam, 2 ft. 3 in.; ditto measured along curve, 2 ft. 9 in.; circumference below crown, 7 in.

*Dama vulgaris*, Gray. Fallow Deer.—Resident and breeding in semi-confinement in the Deer parks of Bradgate, Beaumanor, Gopsall, &c. Probably introduced into the county at the time of the Roman occupation of Leicester. The dark race, common at Bradgate and Gopsall Parks, is stated by Bell ('British Quadrupeds') to have been introduced from Norway by James I.; but Mr. Harting has shown ('Essays on Sport and Natural

History') that this statement, which has been repeatedly copied, is without foundation, and that a dark race of Fallow Deer existed in England at least two centuries earlier. An old deed, dated 1247, quoted in Potter's 'History of Charnwood,' relates to the hunting and taking of Deer in Bradgate Forest, and is interesting as being the earliest known hunting agreement in existence.

*Capreolus caprea*, Gray. Roe. — Extinct within historic times. This species certainly inhabited Leicestershire in former days. The museum contains two basal portions of skulls, found at excavations in Leicester. Potter says, speaking of the manor of Roecliff—now written Roecliffe—"It is said to have derived its name from the circumstance of its having been a 'stocking' or hunting ground for the Roe in the days of the Earls of Leicester." So late as the early part of the 16th century the Priors of Ulverscroft (then called Alwayscroft) "did hunt, course, and hawk throughout the waste of Charnwood unto the saulte of the Parks of Bradgate, Groby, and Loughborough; that is to say, Fallow Deer, *Roe*, Foxes, Hares, &c."

*Rangifer tarandus*, Linn. Reindeer. — Extinct. A few limb bones and horns are occasionally found in the Belgrave and other "river gravels," and also in the "drifts." The remains of this Ungulate clearly date back to pre-historic times.\* Some good specimens of horns are in the Leicester Museum; one, a very fine specimen, part of a right antler, was found April 7th, 1866, in Grafton Place, at a depth of 11 ft. in the drift gravel, and presented by Mr. George Holmes. A portion of another right antler was found in Hutchinson's gravel pit, Belgrave Road, in August, 1878; and a third portion in the Abbey Meadow in June, 1880.

#### FAMILY SUIDÆ.

*Sus scrofa*, Linn. Wild Boar. — Extinct within historic times, and formerly inhabited Leicestershire. Several tusks have been dug up, pierced for rude ornaments; and the Leicester Museum possesses a Roman vase of "Upchurch" ware, in which were found some remarkably fine Boar's tusks. Wild hogs, according to Potter, abounded in the forest of Charnwood.

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\* But see art. "Reindeer" in Harting's 'Extinct British Animals.'

## ORDER CETACEA.

Two portions of the mandible of a huge Cetacean, resembling, if not identical with, the existing Greenland "Right" Whale, *Balæna mysticetus*, Linn., were found during the excavations for the Abbey Park in 1881, and forwarded to me. Mr. T. Griffiths, C.E., who was at the finding of the largest (or condylic) portion, described it as resting upon the post-tertiary gravels, at a depth of ten feet, under apparently undisturbed soil; and from what Davis and Gunn write as to the "Chillesford" and "forest" beds, it was at first supposed that we might possibly discover in Leicestershire a formation somewhat analogous to those; but on referring the matter to Mr. J. D. Paul, F.G.S., of Leicester, we decided to submit the bone and its history to Professor Flower, F.R.S. This was accordingly done, and Professor Flower subsequently wrote me that I was, no doubt, correct in my supposition as to the bones in question having been brought from a distance and used for posts, or similar purpose, at some remote period, and having afterwards become buried in the morass and gradually covered over with soil, &c., but that they showed no trace whatever of what might be called a fossil origin. Probably this is the true explanation, for at Knossington I saw, in 1883, the rami of the mandible of a large Whale, used as an entrance archway to a garden, and these were of considerable antiquity.

The foregoing list gives a total of 40 species of mammals, exclusive of the Horse and Whale. Original notes are now invited with reference to the following:—Polecat, Pine Marten, Water Shrew, any Bats (excepting the Long-eared, Pipistrelle, and Noctule), Black Rat, Harvest Mouse, Red Field-Vole, Dormouse; also upon any extinct Ungulates, or upon varieties of any mammals inhabiting Leicestershire.

## ADDENDA.

Page 215-216. I am now enabled to add another species of Bat (making the sixth now recorded) to the list of CHIROPTERA, viz.:—*Vespertilio daubentonii*, Kuhl. Daubenton's Bat.—Rare. An adult female of this species (nine inches and three-quarters in expanse of wings) was brought to me, whilst still alive, on June 19th, 1885, having been knocked down with a stone (two or three evenings previously) whilst flying over water



at Aylestone, by Master George Snoad, who kindly presented it to the Museum.

Page 219. *Arvicola agrestis* (Linn.). Common Field-Vole.—Mr. J. Whitaker, of Mansfield, Notts, informs me of a light buff or cream-coloured variety of this species, procured at Wistow Grange in 1884.

ERRATA.—Page 163, six lines from bottom, for "1855," read "1885"; five lines from bottom, for "Mrs." read "Mr. S." Page 166, eleven lines from top, for "Stoughton," read "Stonton." Page 216, thirteen lines from bottom, for "Mole," read "Vole."

(To be continued.)

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## NOTES AND OBSERVATIONS ON BRITISH STALK-EYED CRUSTACEA.

BY EDWARD LOVETT.

(Continued from p. 106.)

### *Nephrops norvegicus*, Leach.

THE Norway Lobster, as this species is called, is one of the most beautiful, as it is one of the most remarkable, forms frequenting our shores. Its graceful form and brilliant colour would be calculated to give the idea that its habitat was the luxuriant coral groves and pools of tropical islands; whereas it is really a species which, if not actually confined to northern areas, is certainly more abundant as a boreal type, and, as far as the British Islands are concerned, it is undoubtedly rare—if indeed it occurs at all—on our southern coasts, whereas it is exceedingly abundant on the shores of the cold unfriendly north.

This fact is a curious and interesting one when viewed from the standpoint of colouration as adapted to surrounding conditions. *Nephrops norvegicus* is a lobster of a decidedly pink colour, and occasionally the tint is quite coral-like in its brightness; it is therefore an animal easily seen, and consequently easily captured by its enemies, contrasting as it does with the dull muddy shores of the Northumberland coast, or even the coast of Norway, where it is particularly abundant; whereas if its habitat had been a southern one, where brilliantly tinted Algæ crowded the bright granitic rock-pools of an almost semi-tropical shore, its peculiarly striking tints would appear to be of some service in protecting it from the attacks of predatory fishes.

In the insect world we find that many Lepidoptera for which birds have a liking gradually adapt themselves, by the survival of the least conspicuous, to their surrounding conditions as regards colour and markings, so that they are not readily discovered by their enemies, and therefore escape extermination, which would certainly ensue did they combine the qualifications of being easily seen and being attractive also as a dainty morsel. On the other hand, some insects, owing to their bitter or otherwise disagreeable flavour, are not sought for by birds, and these are consequently enabled to develop brilliant colours, as in the case of the common Garden Tiger moth, *Arctia caja*.

Now it is curious that this theory does not hold good with the crustacean *Nephrops norvegicus*, for although an animal of a striking colour living in a dull region, and a region, moreover, swarming with crustacean-eating fish, it is one of the most palatable and favourite foods of these fish, as it is also a recognised and rather valuable article of human food. It is possible that there may be conditions of which we are ignorant that enable this species to reproduce itself to a greater extent than is the case with others, but whatever these conditions may be, it is certain that a species which is a favourite food for fishes, and one readily distinguished on account of its prominent colour by its enemies, is able to hold its own in the struggle for existence under the, apparently, most disadvantageous circumstances.

The carapace of the Norway Lobster differs considerably from the common or marketable lobster; it is slender and elongated, pink in colour, and flattened at the sides in the cephalo-thoracic region; the abdominal somites are barred with a darker colour, and the tail-plates are rather broad and fan-shaped. The anterior pair of legs, or claws, are unusually long, deeply furrowed, and the ridge armed with spines; the difference in size between the right and left claw is not so marked as in the common lobster; the pincers are also elongated, the inner edges being tuberculated in the larger claw and more finely toothed in the smaller. The second and third pairs of legs are armed with small pincers, but the fourth and fifth pairs terminate in a simple claw. The rostrum is long and strongly toothed, the antennæ long and slender, and the eyes are unusually large and kidney-shaped,—another rather striking peculiarity, considering that *Nephrops norvegicus* is a somewhat deep-water species, under

which conditions organs of vision tend to decrease in power and structure, as in the remarkable instance of the sightless deep-water species *Calocaris macandreae*, referred to in a former article. The animal we are now considering possesses perhaps the finest eyes—certainly in proportion to its size, &c.—of all our stalk-eyed species.

The colour of *Nephrops norvegicus*, as I have already stated, is pink, or salmon-colour, varying slightly in shade. Its length is eight or nine inches, exclusive of the anterior pair of legs, which are about the same length.

This species is really a boreal one, although Bell records it from the Mediterranean, and alludes to its occurrence in the Adriatic, as chronicled by Prof. Milne-Edwards; he also notes it as being not at all uncommon on the Berwickshire coast, and amongst other localities he enumerates the Firth of Forth, Loch Fyne, Belfast Lough, Strangford Lough, and off the coast of Down. It is also said to be largely used as food in Dublin—human food, of course, although it is commonly found in the stomachs of the Dublin Bay codfish, showing that it is also valued as food by crustacean-eating fish. In Newcastle it is sold very cheaply indeed, and is there called a prawn. In the Reports of the British Association, and in the 'Natural History Review,' this species is also recorded from Dublin Bay, Galway, and Moray Firth.

In the Transactions of the Tyneside Naturalists' Field Club (p. 154), my friend Mr. Henry Tuke Mennell says:—"Owing to the recent introduction of trawling in this district large numbers of the pretty little lobster *Nephrops norvegicus* have been caught, and have been sold at fish-shops in the town. It has been a favourite article of food in Scotland; but in this district it has been unknown in this capacity. Its flesh is more delicate in flavour and less tough than that of the common lobster, but unfortunately there is less of it."

As regards the embryology of this species I am unable to say anything, as I have never seen its ova or zoea.

*Nephropsis cornubiensis*, Bate.

In the British Association Report for 1880, p. 160, a figure is given of the above, and it is said to have been dredged off the Dudman, but I do not know more regarding it; and if it be a new species it is not apparently much known.

(To be continued.)

## NOTES AND QUERIES.

**The Darwin Memorial Statue.** — On June 9th, H.R.H. the Prince of Wales, as Principal Trustee of the British Museum, attended at the Natural History Museum, South Kensington, for the purpose of accepting in his own name and that of his co-trustees a life-sized marble statue of the late Charles Darwin formally presented to the Natural History Department of the British Museum by Professor Huxley on behalf of the Darwin Memorial Committee. The execution of the statue was entrusted to Mr. Boehm, R.A., who, considering that he had never seen Mr. Darwin, has produced a really excellent likeness of the deceased naturalist in a seated position. It has been placed on the staircase at the end of the entrance-hall, on a brown stone pedestal, and bears the simple inscription, "Charles Darwin, born Feb. 12, 1809; died April 19, 1882." In a brief address, previous to unveiling the statue, Professor Huxley intimated that, after deducting the cost of the statue from the amount collected by the Memorial Committee, the balance would be devoted to the furtherance of biological science, either by the foundation of studentships under the control of the Royal Society, or in some other way to be decided later. The Prince of Wales in reply said that the Committee and Subscribers to the Darwin Memorial Fund might be assured that the Trustees of the British Museum had willingly assigned a place of honour in the Hall of the Natural History Museum to the statue of an Englishman who had exerted so great an influence upon the progress of Zoology and Botany, the advancement of which sciences was the object of the vast collections now arranged there.

**Experiments on Living Animals.** — In a return relating to experiments on living animals lately issued by the Home Office, Mr. Busk reports that 49 persons held licences during 1884, and the total number of experiments of all kinds performed was about 441. The animals operated upon were all rendered insensible during the experiments. Of 145 experiments 99 consisted of simple inoculation with a morbid virus, in which no operation beyond the prick of a needle was required, and for which the administration of an anæsthetic would only have entailed needless annoyance and distress to the animal. In these experiments any appreciable suffering would be felt only in those cases in which the inoculation took effect, involving about the same amount of pain as ensues on ordinary vaccination, for the brief period the animals were allowed to survive. Of such cases about 16 occurred. Of the remaining 46 experiments under these certificates, 24 were performed for the purpose of medico-legal inquiries in cases of suspected poisoning, resulting in the death by tetanus of 3 frogs and 6 mice, which survived, however, only a few minutes; 10 other cases under the same head were experiments on the infection of fish with a species of



fungus, very destructive in certain rivers and streams; and 5 on the effects of immersion of fish in distilled water, which proved fatal to about 30 minnows and sticklebacks. In none of these cases could it be said that any appreciable suffering was inflicted. In 7 cases, in which salts of ammonia were hypodermically injected, 2 are returned as suffering pain, but of a very trifling character. Of 76 specimens under certificates, 47 required a simple operation, but this being done under anæsthesia was unfelt, and the after effects, though in many of the cases resulting in partial paralysis, are reported as having been unattended with actual pain in any case. The remaining 29 were by simple inoculation, and none were attended with pain. The amount of direct or indirect actual suffering, as the result of physiological and therapeutical experiments performed in England and Scotland under the Act in the year 1884, was wholly insignificant.

**The Marine Biological Station.**—That a site has been obtained from Government for a Marine Laboratory, as stated in the last number of 'The Zoologist' (p. 227), is something gained, though it may be questioned whether the Citadel Hill, Plymouth, is a fit place for it—where the "sea-water will have to be driven up by a pumping apparatus." It is to be regretted that we have nothing on our own coasts to compare with that great work at Concarneau (Britanny)—no pumping of sea-water required there, the tanks being filled and refilled by the tide. Having in 'The Zoologist' for 1874, p. 3947, given a slight description of these far-famed tanks, I need only say, for the information of those interested in the subject, that they cover a space of a thousand square yards, partly hewn out of the rock; all this, as I was informed, the work of an enterprising individual, unaided by the Government till of late years. — HENRY HADFIELD (Highcliff, Ventnor, Isle of Wight).

#### MAMMALIA.

**Dormouse in Cumberland.**—Referring to Mr. Rope's article on the distribution of this little animal in England, I may point out that the earliest record of its occurrence in the Ullswater district, is that of Dr. Heysham, since borne out by the observations of Mr. W. Hodgson, A.L.S. In August, 1884, Mr. Hodgson wrote to me that he had frequently met with the Dormouse in Ullswater, its most recent appearance having been noted at Watermillock. With regard to the south-west of Cumberland, there is the evidence of Mr. T. N. Postlethwaite. I have two notes of its occurrence in North Cumberland, with regard to which further evidence could be adduced if required.—H. A. MACPHERSON (Carlisle).

**Dormouse in Northamptonshire.**—With reference to the paper by Mr. G. T. Rope in the June number of 'The Zoologist,' on the range of the Dormouse, *Muscardinus avellanarius*, in England and Wales, I beg to inform your readers that this little animal was formerly common enough

in the neighbourhood of Lilford; it appears to be less abundant now, but is by no means extremely rare in our old woods.—LILFORD (June 3, 1885).

**Dormouse in Wales.**—As Mr. Rope, in his article on the range of the Dormouse, has left out this county (Breconshire) and also the adjoining county (Carmarthenshire), it may interest him and others to learn that it certainly occurs in both these counties, though very sparingly, and it is, I think, commoner in Carmarthenshire than Breconshire. I have heard of and seen four or five since I have resided here, now nearly twenty years, and a connection of mine living in Carmarthenshire—an excellent field naturalist—writes me that Dormice are not very common there. I have received very much the same information concerning Cardiganshire, my informant adding that he has himself seen this little animal there several times. The Welsh for Dormouse is *pathew*, and there is an old Welsh saying commonly used in Cardiganshire, *Can dewed â pathew*,—i. e., “As fat as a dormouse,”—which shows conclusively that it is well known in South Wales.—E. CAMBRIDGE PHILLIPS (The Elms, Brecon).

#### BIRDS.

**Ornithological Notes from the Isle of Wight.**—Though the spring was cold and backward, the Song Thrush had well-fledged young by March 3rd, and a Blackbird's nest with eggs was found early in the month; the latter part of February had been mild, the thermometer up to 50°. On March 5th Starlings were seen about the eaves, inspecting their nesting-holes; whether they remain paired from one season to another I am not prepared to say, but the same holes are frequented year after year; they had young by the second week in May, egg-shells being found on the lawn. Though one Swallow was seen on April 8th, it was not till the middle of the month that I heard of others being observed; nor were Martins seen till the 20th. The Nightingale first heard at St. Lawrence—its favourite resort—on April 10th; a showery day, though cold, thermometer 46° only. Cuckoo not heard till late in the month. On May 14th young Rooks were observed perching on and about the nests in the lofty elms at Bonchurch, occasionally taking short flights and clamouring to be fed. It is amusing to see them swaying to and fro on the branches as if about to fall, though they seldom do. A Golden Eagle was shot near Ryde some weeks since; it had previously been observed in the neighbourhood of Cowes. An intelligent young man, who takes great interest in Ornithology, having examined the bird, is of opinion that it had been in confinement, of which there can be little doubt, the tail-feathers being worn and ragged. I had some doubt as to the Eagle shot near Carisbrook—and recorded in ‘The Zoologist’ at the time—being a wild one, as it had lost a toe, but the plumage was perfect.—HENRY HADFIELD (High Cliff, Ventnor).

**Sparrow feeding on Ants.** — I do not know whether Ants have been noted as being eaten by Sparrows at home. Here, where Red Ants swarm in countless numbers, it is of common occurrence to see *Passer domesticus* in his eastern dress devouring numbers of them.—E. F. BECHER, Capt. R.A. (Karachi, Sind).

**Hoopoe in Northamptonshire.**—I regret to say that a Hoopoe, *Upupa epops*, has fallen a victim in our county. Mr. J. G. Field, of Kettering, informs me that, about 6th May ult., the unfortunate bird in question was found alive, with a broken wing and damage to tail-feathers, between Ged-dington and Brigstock, and is now in his possession. This is about the fifth instance of the massacre of this most ornamental and interesting species in Northamptonshire that has come to our knowledge. — LILFORD (June 3rd, 1885).

**Albino Rooks.** — Three young cream-coloured Rooks, with light pink eyes and fully fledged, were found in one nest at Skellingthorpe during the first week of June by some boys, who stated that the hen bird was spotted with white, but the cock was of the usual colour. I think the occurrence of three albinos in one nest is very unusual. — J. F. MUSHAM (Blenheim House, South Park, Lincoln).

**Occurrence of Buffon's Skua in June.** — On June 4th last I had the pleasure of receiving from my friend, Dr. Macdougall, an adult male of Buffon's Skua, which had been shot the previous day upon the Eden, a few miles below Carlisle. It proved to be in rather poor condition, and had been feeding on earthworms. In coloration the legs and feet agreed exactly with the description of a bird recorded by the late Mr. Rodd as killed off the Lizard about the same date (Zool. 1877, p. 300), the irides being dark brown, interior of mouth pale flesh-colour. The central rectrices exceeded the next pair in length by  $7\frac{1}{2}$  inches.—H. A. MACPHERSON (Carlisle).

**Variety of Common Snipe.** — Last cold weather an unusual variety of the Common Snipe was shot near Hydrabad. It was described to me as the colour of a Quail, but, unfortunately, it was sent to Karachi with others and was eaten.—E. F. BECHER, Capt. R.A. (Karachi, Sind).

**Canada Geese and Merlin in Leicestershire.**—On May 9th last we saw a Merlin, *Falco aesalon*, a rare bird in this county, on the wolds a few miles N.E. of this town. As it rose from the moorland within a few feet of us, we were well able to identify it. On the 11th we were fortunate enough to obtain the eggs of the Canada Goose, *Anser canadensis*, from an island in the middle of a large fishpond on the Garendon Estate. The nest was raised from the ground on the edge of the water, the foundation being of reeds and the lining of down, the diameter of the inside measuring over a foot. The eggs, which are white and seven in number, measure  $3\frac{1}{4}$  inches in length, and  $2\frac{1}{16}$  inches in breadth, with slight variations. The bird

stayed on its nest till we got within a few yards of it, and then flew off, circled round, and finally settled in the water. This is not a case, we are positive, where birds have escaped from ornamental waters, as a large flock—about forty—of this species took up their quarters here last winter. The keeper informs us that some winters ago a much larger flock was here, but, owing to the late owner allowing a large number of people to skate on this pond, it was dispersed; and no others, as far as we are aware, have been seen till last winter.—E. OSCAR LEVER; WILFRED MOSS (Loughborough).

**Pheasant and Partridge laying in the same Nest.**—When wandering in a copse near here, on June 3rd, a little dog which accompanied me started a hen Pheasant; I quickly found the nest, but was surprised to see in it twelve Partridges' and nine Pheasants' eggs, on which the hen Pheasant was evidently sitting. The eggs of the two birds were thoroughly mixed in the nest, that is, the Partridges' were not all at the bottom and the Pheasant's at the top, or *vice versâ*, from which it would appear that both the Partridge and the Pheasant were using the nest at the same time for the purpose of laying. It would have been less strange had the Partridge laid her twelve eggs first and the Pheasant then taken possession of the nest, but such was plainly not the case. I visited the nest again on the 12th, and found it quite empty. On searching the ground round the nest I came upon two Pheasant's eggs and the shells of two Partridge's eggs. The Partridges had evidently been hatched, and probably some keeper had taken the Pheasant's eggs, for I found no shells. — JOHN H. WILLMORE (Queenwood College, near Stockbridge, Hants).

[This is not the first time we have heard of Pheasant and Partridge laying in the same nest, and we have heard of a similar partnership between the Common Partridge and the Red-leg.—ED.]

**Redstart Nesting in the Co. Wicklow.** — On June 18th I had the pleasure for the first time of seeing the Redstart in this country. At the request of a lady ornithologist resident in the neighbourhood, I visited Lord Powerscourt's demesne, and there was shown the nest and young ones. After a short time the hen approached to feed them, and not long after, the cock, who was in beautiful plumage, flew down and entered the nest. Mr. Anton, the head keeper, a very kindly and intelligent man, informed me that this was the first year in which he had seen these birds there—CHARLES W. BENSON (Rathmines School, Dublin).

[Want of space has necessitated the omission of the latter portion of our correspondent's letter.—ED.]

**Blackcap breeding in Co. Waterford.** — I have received from an intelligent man, who collects eggs for me, a nest composed of dry grass-bents, mixed externally with a little moss, and internally with a few fibres and hairs, loosely constructed, like the nest of a Whitethroat. It contained five fresh eggs, which appear to be those of the Blackcap Warbler. This



nest was taken on May 18th, about six miles from Youghal (at the estuary of the Blackwater, a famous locality for rare visitants). It was found by the above-mentioned person suspended from the shoots of a hawthorn, among briars and ferns, in a tangled marshy plantation in a little dell. He saw both the birds, which were remarkably fearless, the female even pecking at his hand when he went to take the eggs. He said that the male, which was a beautiful songster, was "slate-coloured, with a head as black as a Bullfinch"; but that the head of the female (who otherwise resembled him) was brown. He had never seen such birds before, nor had he ever heard of the Blackcap. Though I have observed Irish birds for more than thirty years, the only Blackcap I have identified in Ireland was one, a male, which I found recently dead in a cow-house here on December 18th, 1856. I do not know the Redstart, Garden Warbler, Reed Warbler, nor Wood Warbler as Irish birds. The Whitethroat, Sedge and Willow Warblers, and the Chiffchaff are numerous here, while I find the Grasshopper Warbler much commoner than I had supposed, and have got its nests and eggs from the man who found the Blackcaps. On June 3rd I saw the pair of Blackcaps above referred to, and a second nest which they had constructed about fifty yards from the former one in the same tangled covert. It is in a mass of blackberry-briars, which form the under-covert of the plantation, and is well concealed. The female was sitting on five eggs, similar to the former clutch. I soon heard the song of the male, but had I not been told what it was by my conductor (to whose careful observation I owe these facts) I should have supposed it proceeded from a Blackbird, it was so clear and loud. As often as I followed it the bird changed its place, eluding my observation for full half an hour, while it drew me farther from the nest. At last I got a full view of him, an unmistakable Blackcap, with his jet-black cap, white throat, and Warbler shape and actions, ever on the move, yet keeping in the shade, and avoiding observation. I have not touched this second nest, and trust it may lead to Blackbirds colonizing this county.—R. J. USSHER (Cappagh, Co. Waterford).

[Our correspondent has been good enough to forward the first-discovered nest and eggs for our inspection, and there is no doubt they have been correctly identified. The discovery is a most interesting one.—ED.]

**Virginian Nightingales nesting at liberty in England.**—To all interested in the subject of acclimatising and naturalising birds, the following experiment seems worth relating:—A pair of Virginian Nightingales (*Loxia cardinalis*), or, as they are more aptly called, Red Cardinals, had been in a large outdoor pheasantry since February, 1883, during the summer of which year, as well as the following one, they built a nest, though the hen never laid any eggs, for what reason it was difficult to find out, for she seemed to have every inclination to incubate. However, in the middle of May this year both birds accidentally escaped, and, as they

seemed to take their newly-found liberty happily and reasonably, I took no trouble to catch them again, but allowed them to fly from bush to bush in the shrubbery close by the house, which they seemed to take to, and where the loud musical notes of the male bird could be heard all day long. Sometimes a glimpse of him as he flitted across the pathway could be caught, looking most brilliant with his beautiful scarlet coat, or when perched on the top of some hawthorn or syringa shrub, evidently in high delight at the elysium in which he suddenly found himself. The day after they escaped I saw a rough nest of dead grass and leaves, or rather the beginning of one, in a decidedly bare yew tree of small dimensions,—in fact only about six feet high. I thought the construction and materials of the nest were of an uncommon kind, but never imagined that the red birds could have got so soon to work. The next day the gardener told me that he had seen the hen on this nest, whilst the cock was perched on the top of the tree it was in. So this was proof positive; and in two days more an egg about the size of a Lark's, dull white spotted with reddish brown, was laid. By the end of five days there was a corresponding number of eggs. For a fortnight the hen sat closely, when four young birds hatched and prospered for a week. At the end of that time I went, meaning to take the brood to rear up by hand and make them tame, so that the old birds might lose no time in nesting once more. To my great disappointment two of the young ones had disappeared, whilst the other two did not look flourishing, and the nest was pulled to one side. A Jackdaw, or some other vermin, had evidently been at work, for there were signs of a peck on the stomach of one nestling. The parent birds were flying round in an excited state. Whatever had stolen the others I felt sure would return, consequently I took the remaining two; but they died before the day was over. This was on the 15th of June. On the 17th I discovered that the Virginians were not to be beaten, and had begun another nest close by the former spot, but this time in a holly bush, unfortunately equally bare of foliage and no larger than the yew tree. To add to these disadvantages, the nest is within a yard of the ground. It is curious that such spots should be chosen when there is such an abundance of thickly growing box-bushes and various other kinds of shrubs all round, places one would imagine any bird would infinitely prefer. However, I must hope for better luck this time. At any rate, this is a proof of what foreign birds will do, and how easily they might be naturalised in England, if people would but venture on such experiments, provided others could be persuaded not to shoot every uncommon bird that crosses their path.—H. D. ASTLEY (Chequers Court, Tring).

**Little Gull in Guernsey.**—On a recent visit to Guernsey I was shown a Little Gull, which had been picked up dead in a field in St. Martin's parish on the 17th of January last; it was a fully adult bird in winter plumage. The Little Gull does not occur very frequently; I could

only record one specimen in the 'Birds of Guernsey' from a note by Mr. Harvie Brown in 'The Zoologist,' and there is no mention of it in Professor Ansted's list. This bird was reported to me some time ago as a Tern, also as an Ivory Gull; so I thought it better not to record it till I had seen it myself. I saw little else on my visit worth mentioning; the Shags on the cliffs had all hatched some time when I saw them from the 1st to the 8th of June, but not one of the Herring Gulls, though all those I saw were sitting hard. Kentish Plovers seem to have decreased in numbers; we saw a few about the bay in the Vale and on the shell-beach at Herm, but found no eggs. There were a few Common Terns about Jettoo; and I picked up one Turnstone in full breeding plumage in Grand Havre dead and rather high. On the passage home we saw a large flock of Gannets fishing about seven or eight miles off Portland; they were mostly immature birds in different stages of plumage, though some were apparently adult birds, being all white, except the black primaries; others were in the dark plumage of the young birds, and others had only the head white, the rest of the body being in the dark plumage of the young bird, with apparently no white feathers mixed with the dark ones. — CECIL SMITH (Bishop's Lydeard, Taunton).

**Sparrow attacking a Willow Wren.**—When in my kitchen-garden this morning (June 16th), I saw two birds scuffling under a currant-bush about ten yards off, which proved to be a Sparrow and a Willow Wren, the latter crying out most pitifully. In a second or two the Sparrow got hold of it and flew about ten yards, when both came to the ground. The Sparrow then rose and carried the Wren about fifteen yards, falling into a thick hedge, where I dashed after them. I could hear the cries of the Willow Wren till I got quite near. On looking into the hedge the Sparrow (a male) flew up into a fir-tree, where he rubbed his bill on a branch in a most satisfied way, but I could not find the Wren. I then ran into the house and got my specimen-gun, and shot, I believe, the same Sparrow; and on the report of the gun the Wren flew out of the bottom of the hedge and away, not much hurt. If the Sparrow to his many other bad qualities is going to add these Shrike-like accomplishments, I for one shall give mine a good "thinning-down." During spring and autumn every bird is protected here, but I now strike *Passer domesticus* off the list.—J. WHITAKER (Rainworth Lodge, Notts).

**Swans' Nests.**—In March last two Swans came on the water here from the lake below the house, and in a day or two commenced to build on the island. When the nest was finished one began to lay, and on leaving the nest each morning the other performed the duty of the male. After laying eight eggs (which I took, not wanting them to breed, and having an idea they were both hens), the other bird took to the nest, and I found every other morning two eggs, both laid in one night, as I looked every day; they laid eight more, then stopped, and both were on and off the nest for a fort-

night, when one again took to it and laid seven more eggs. These I took, when they left the nest for about ten days, after which they made another nest on the other side of the island and laid one egg, then came back and laid three more in old nest, one of the birds acting the male again. In fact the one in the water was always very bold, and swam at anyone going near the side of the pond. I think the number of eggs laid is so unusual, and the conduct of the birds so strange, that I forward this account of their doings for publication.—J. WHITAKER (Rainworth Lodge, Notts).

**Stock Dove appropriating a Song Thrush's Nest.**—On May 28th, in a spruce fir, which was one of a plantation near a stream rather over a mile from here, two Stock Dove's eggs were taken out of a Song Thrush's nest. The bird flew off as my companion, C. Flight, ascended the tree; he brought down both nest and eggs. The nest, which was about ten feet from the ground, was that of a Song Thrush of the year, well lined with mud. The Stock Dove had filled the nest in with fine roots, so as to form a sort of concave platform. The eggs had been sat on some little time. The Stock Dove will, I know, sometimes appropriate an old nest of a Magpie, or even make no nest at all; but I have never either read or heard of an instance in which it has used the nest of the Song Thrush.—JOHN H. WILLMORE (Queenwood College, near Stockbridge, Hants).

**Jackdaws breeding in a Magpie's Nest, and in Rabbit Holes.**—Jackdaws are so very annoying in stopping up our chimneys with their nests, that I have been obliged to shoot three or four pairs every season during their nesting-time before the others are driven off. This spring they have been more pertinacious than ever, and as fast as one lot were shot down another replaced them, so that I was obliged to wage unceasing war. They then became so cunning that they attempted to build only in the early morning before any person was about, and never came near the chimneys during the rest of the day, but kept with the Rooks on the rookery trees, and roosted there at night. When they found that I kept such a close watch on their movements, they turned their attention elsewhere, and I thought I had got rid of them; but one day, about the middle of April, I was surprised at seeing several Jackdaws making a great noise, and playing about a Magpie's nest on an ash tree about sixty feet high, situated about twenty yards from the cottage. I had shot the hen Magpie, and the cock had deserted the nest some time before, so there was no owner to dispute possession with the Jackdaws, who took up their abode there, the hen laying and hatching out her young safely a few days ago. This proceeding of the Jackdaws appears to me so very unusual that I should be glad to know if any of your contributors are aware of any similar instance of Jackdaws breeding in Magpies' nests. For some years past large numbers of these birds have bred in the rabbit-holes on the island of Bartragh; in many cases the burrows are in level ground, with scarcely any bank or rising.—ROBERT WARREN (Moy View, Ballina, Co. Mayo).



**Wrens' Nests.**—Some time ago I described in 'The Zoologist' a Wren's nest which had been built in a straw-stack, and as the outside was entirely composed of straw, I remarked that these little birds assimilated their nests generally to the surrounding objects. Since then I have formed another opinion, namely, that they make their nests of the nearest available materials, which very often match the surroundings of the nest. I may mention the following nests which have come under my notice:—One in brown bracken, all outside of bracken; one in a wall over a bed of nettles, the outside being composed of pieces and leaves of nettles; one near a carpenter's shop, all outside of shavings; one in an arbour—here the nest was built in the side in some old heather, and was made of old grass which was used to stop up holes in the window of the arbour; the light brown grass was very conspicuous against the dark heather. One in a beech-tree on the lawn was formed of new-mown grass from a heap below the branch on which it was placed.—J. WHITAKER (Rainworth Lodge, Mansfield).

#### FISHES.

**Flying Fish.**—An excellent opportunity of observing the aerial means of propulsion in the Flying Fish was afforded me during a six day's calm lately, when crossing the Bay of Bengal. This must be my excuse for again touching this subject. I watched day by day some hundreds rise under the bows of the ship. The water-surface was a glassy calm. As each fish rose it spread its wings at once, apparently beating the surface with them two or three strokes before they steadied out. I say apparently, for it was not a definite beat so much as a struggle to rise. The tail, which of course under water was in rapid motion to escape from the ship, now gave ten or a dozen rapid beats, which could be counted by the ripples on the still surface, and the fish was off in aerial flight. As each fish lost the impetus of the first rise, which generally happened at about forty yards, the binoculars showed us the anal fins, which had till now been fully extended, drooping to feel the water. As soon as the surface was felt the tail was quickly introduced, and five or six smart strokes, also indicated by ripples, brought the impetus up again and carried the fish about another thirty yards, when another droop sent it on again, and so forth, some of the older fish travelling in this way four hundred or five hundred yards. The younger fish frequently fell awkwardly in this attempt to regain impetus. Where waves are running it requires a clever fish to gain impetus by a few judicious strokes on the crest of a wave, and many a fish tumbles over in the attempt. I once saw a fish rise close to the ship's quarter, and it flew parallel with the ship, pursued below by a Dolphin or Bonita. The latter followed every sway of the Flying Fish, keeping almost under it. At the first dip of the tail the pursuer made a dart forward, but missed it, and again dogged its prey by keeping just under it. On the second dip the

tail went into its pursuer's mouth, and there was an end of the flyer. It always struck me that it seemed a strain on the fish to keep the wings extended.—ALFRED CARPENTER, in 'Nature.'

**Basking Sharks on the Coast of Cornwall.**—Several Basking Sharks, *Selachus maximus*, have lately made their appearance on the Cornish coast. Just after having read the account given by Dr. Day, in the last number of 'The Zoologist' (p. 235), of the specimen sent to him by Mr. Dunn, of Mevagissey, I received a letter from my friend Mr. Stephen Clogg, of Looe (who identified the species), stating that a small but good specimen of the Basking Shark, about nine feet in length, was caught on June 3rd in a Polperro drifting mackerel-net, and brought into Looe for exhibition. This species is but rarely captured by the Plymouth fishermen. I have never had but one opportunity of examining a fresh specimen. This was rather a large one, sixteen feet long, caught many years since near the Eddystone, and exhibited in the town. Of this I made a drawing expressly for the late Mr. Couch, a copy of which may be found in the Appendix to his work on 'British Fishes,' where it is described under the name of "Broad-headed Gazer."—JOHN GATCOMBE (Durnford Street, Stonehouse).

**Migration of Eels.**—The eels of the ponds in the woods of Vincennes leave them every spring in large numbers, making their way to the Seine or the Marne, several kilometres distant. They take advantage of rainy weather, when the herbage is wet, and their instinct guides them directly to their destination. Fresh specimens have repeatedly been introduced into the lakes, but in vain; all seem to have this disposition to leave. Some have thought that the water of these ponds, having been brought by hydraulic engines, has undergone some change which drives the eels away. But the phenomenon of such migrations by eels and some other fishes is not uncommon. Thus, in the marshes of Picardy, eels are often found on the grass, going from one pond to another.

#### BATRACHIA.

**On the Occurrence of the Palmated Newt in Oxfordshire.**—My friend Mr. W. R. Ogilvie-Grant has recently ascertained the existence of the Palmated Newt, *Molge palmata*, in a small horse-pond on the border of a wood at Wormsley, near Stoken-Church. This is the first record of the occurrence of that species in Oxfordshire. In order to assist the readers of this Journal in completing our knowledge of the distribution of this local, though by no means rare, Batrachian, the following list of the counties whence it has hitherto been recorded—information at present scattered in various works, and volumes of 'The Zoologist'—is appended:—*Scotland.*—Sutherland, Edinburgh, Kirkcudbrightshire. *England.*—Herefordshire, Gloucestershire, Cornwall, Devonshire, Somersetshire, Dorsetshire,

Isle of Wight. I also take this opportunity to correct an error of locality made by the late Dr. Gray in the 'Catalogue of Batrachia Gradientia,' and which I have unfortunately reproduced in the recent issue of that Catalogue. Specimens of *M. palmata* are mentioned as having been obtained near Nottingham by Mr. Higginbottom. But, from the article on British Newts, published by the latter gentleman in the 'Annals and Magazine' for 1853, it is evident that the specimens presented by him to the British Museum were not from Nottingham, his place of residence, but from Bridgewater and Scotland, whence he obtained them through Messrs. Baker and Wolley, the original discoverers of the species in this country. To the well-known peculiarities which distinguish the Palmated Newt from the common species, but which apply to the males only, may be added the total absence in the former of pigment on the throat, this region being of a transparent flesh-colour—a character which affords an excellent criterion for the distinction of the two allied species in either sex.—G. A. BOULENGER (8, Courtfield Road, S.W.).

## MOLLUSCA.

**Segmentina lineata, Walker, a Thread-spinner.**—My brother (L. M. C.), who has been keeping some of these interesting little *Planorbis* in a bell-jar, informs me that he has observed a specimen spinning a downward thread from the surface of the water to the bottom of the bell-jar. This is to me a very interesting fact, as I believe that this species has never before been recorded as a thread-spinner, and as it belongs to a different section of *Planorbis* to those species already known as thread-spinners (e. g., *P. carinatus*, *P. spinorbis*), it is well worth recording. The specimen in question was found in a ditch at Barnes, in company with *P. nitidus*, by my brother (D. B. C.), who, it may be well to remark, discovered a specimen of *Limnæa glabra* monst. *decollatum* in a pond close by. This last is a very rare species in the London district.—T. D. A. COCKERELL (51, Woodstock Road, Bedford Park).

**Swiss Mollusca.**—The following is a list of an interesting collection of land-shells made by Mr. G. F. Payn in the neighbourhood of Weggis during the last week of July, 1884:—*Clausilia parvula* (abundant), *C. laminata*, *Cochlicopa lubrica* var. *lubricoides*, *Pupa secale* (common), *Helix pomatia*, *H. pulchella* var. *costata*, *H. lapicida*, *H. rotundata*, *H. personata* (several), *H. obvoluta*, *H. incarnata*, *Succinea oblonga*, *Hyalina crystallina*, *H. nitidula* var. *nitens* (= *Helix nitens*, Michaud), and *Pomatias septemspirale*. Mr. Payn sent me some of the *P. septemspirale* alive, and I had an opportunity of examining the animal. It is very curious, light in colour, with a long snout, something like *Cyclostoma elegans*. The operculum is thin and light in colour.—T. D. A. COCKERELL (51, Woodstock Road, Bedford Park).

## ARCHÆOLOGY.

**Wolves in Ireland.**—The following order, copied from the Commonwealth Records, shows that Wolves were troublesome in Ireland as late as the year 1659:—

Capt. Tomlins to take care yt ye Toyles for taking Wolves bee brought from Green- hill, &c., to Mr. Hunt.	WHEREAS some many hath been issued upon Accompt to Coll. Daniell Abbott and others for providing of Toyles for taking of Wolves, which have been brought over for publique use, and understanding that part thereof is at present at Greenhill, near Kilcullen, Ordered that Capt. Tomlins, Comptroller of ye Trayne, do forthwith take care that ye sd Toyles and other materials thereto belonging bee brought from Greenhill or any other place, and layd in the publique stores, and there kept untill further directions shall be given concerning ye same. Dated at Dublin, 29 Augt. 1659.—THOS. HERBERT, Secretary.
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*Extracts from 'The Ulster Journal of Archæology.'*

About twenty years since a person from the County Tyrone, named John Russell, was employed here as a farm-labourer. This person repeatedly affirmed that the last Wolf seen in Ireland was killed at a place called Glenelly by a mare in defence of her foal! He could not, however, give the date. This fact might lead to an answer to the inquiry of your correspondent Senex.—J. BELL, Prospect, Ballymoney.—Vol. ii. (1854), p. 281.

*An oulde Church made into a new Fort, Derry.*—This conversion of the abbey church into a fort and magazine gave high offence. O'Sullivan tells the tale how a large and hairy Wolf caused the explosion which followed.—Vol. iii. (1855), p. 281.

In the first year of the reign of Queen Anne. . . . The colony was now in its infancy. . . . The Wolf\* and the Wild Cat, the Martin (*sic*) and the Red-deer, were beating an orderly retreat; while the O'Dempseys had bequeathed to their successors, in the Irish names in the immediate district, . . . . memorials significant of the wild animals, and indicative of the household of an Irish prince. Thus we have Kilbracken, the wood of wolves, &c. These translations are taken from Mason's 'Practical Survey of Ireland.'—Vol. iii. (1855), p. 215.

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\* We have seen an order of Cromwell's time "to send to Greenhills, near Kilcullen, for the toyles of the Wolves." J. Howel, alderman of Cork, in a letter dated 1698, writes thus:—"Wolves indeed we have, and Foxes, but these indeed are now rather game and diversion, than noxious or hateful." The wolf-hunting implied by Howel terminated in 1714, by the death of the last of the race [in that county].



## SCIENTIFIC SOCIETIES.

## ROYAL SOCIETY.

May 21, 1885.—Prof. HUXLEY, President, in the chair.

Prof. Boyd Dawkins, M.A., F.R.S., communicated a paper entitled "Contributions to the History of the Pleiocene and Pleistocene Deer. Part I. *Cervus verticornis*, *Cervus savini*." The numerous cervine remains which occur in the various collections in Britain and on the Continent have been studied by the author for the last twenty-five years, and in this communication two species, the one hitherto ill-defined, and the other new to science, have been described. The first, or *Cervus verticornis*, Dawkins, remarkable for the singular forward and downward curvature of the first tine, is represented by a large series of skulls and antlers, which enable the author to define the changes in antler-form from youth to old age, as well as to relegate it to the division of deer with palmated antlers, and to establish its geological age to be Pleiocene and early Pleistocene in Norfolk and Suffolk. The second, or *Cervus savini*, is represented by several skulls and many antlers, which present considerable modifications in form at varying ages. It also belongs to the section of deer with palmated antlers, and is probably the ancestral form of the extinct (*Cervus browni*, Dawkins) and living (*C. dama*) types of fallow deer. It has hitherto only been met with in the early Pleistocene forest-bed series of Norfolk and Suffolk.

## ZOOLOGICAL SOCIETY OF LONDON.

June 2, 1885.—Prof. W. H. FLOWER, LL.D., V.-P.R.S., President, in the chair.

Mr. Sclater exhibited drawings of, and made remarks upon, the specimens of various species of *Coly* living in the Society's Collection.

Mr. Beddard, on behalf of himself and Mr. Treves, read a paper on the anatomy of the Sondaic Rhinoceros, *Rhinoceros sondaicus*, which had died in the Society's Gardens in January last.

A communication was read from Dr. Julius von Haast, on *Megalapteryx hectori*, an extinct gigantic representative of the *Apteryx*, of which the remains had recently been discovered in New Zealand.

Dr. Guillemard read the fourth and fifth parts of his report on the collection of birds formed during the voyage of the yacht 'Marchesa.' The present communication treated of the birds collected at Celebes and on the Molucca Islands.

Mr. J. Bland Sutton read a paper on the development and morphology

of the human sphenoid bone, in which he attempted to show that the basi-temporals of the bird are not homologous with the lingulæ sphenoidales, but with the so-called pterygoid bones of the Crocodile, and that the human lingulæ are homologous with the sphenotic of the bird.

Mr. Edgar A. Smith read a report on a collection of shells, chiefly land and freshwater, obtained by Mr. H. B. Guppy, R.N., Surgeon H.M.S. 'Lark' during a recent visit to Solomon Islands.

June 16, 1885.—PROF. W. H. FLOWER, LL.D., V.-P.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of May, and called attention to four Pucheran's Guinea-fowls, *Numida pucherani*, from Eastern Africa, presented by Commander C. E. Gissing, R.N., H.B.M. Vice-Consul at Zanzibar; and to examples of two species of Wild Cats of the genus *Felis*, presented by Mr. Frank Swettenham, acting British Resident of Perak, Malay Peninsula. Two of the cats appeared to be young examples of *Felis javanensis*; the third was a fine example of the rare *Felis marmorata*, remarkable for its long tail.

The Secretary read some extracts from a letter addressed to him by Mr. J. Buttikofer, of the Leyden Museum, calling attention to a paper published in 1857 by the late Dr. Bernstein, concerning the material of which the edible birds' nests of *Collocalia esculenta* are composed.

A letter was read from Major-General Sir Peter Lumsden, K.C.B., giving details of the place and time of capture of two young Snow-Leopards sent down from the Afghan frontier to Quetta, and intended for the Society's collection.

Mr. Oldfield Thomas exhibited and remarked on a specimen of a rare burrowing Rodent, *Heterocephalus glaber*, procured by Mr. E. Lort Phillips during his recent expedition in Somali-land, remarkable for having an almost completely naked skin and for its extraordinary habits.

Dr. Guillemard exhibited a series of eight skulls of the Kamtchatkan Wild Sheep, *Ovis nivicola*, pointing out the differences existing between it and *O. canadensis*.

Mr. W. T. Blanford exhibited the skull and an imperfect skin of a supposed new species of *Paradoxurus* from the Pulnai Hills, S. India.

A communication was read from Dr. G. Hartlaub, giving an account of a new species of Parrot of the genus *Psittacula*, recently received from Barranquilla, U.S. of Colombia, which he proposed to describe as *Psittacula spengeli*.

Dr. Guillemard read the sixth part of his report on the collection of birds formed during the voyage of the yacht 'Marchesa.' The present communication treated of the birds collected in New Guinea and the Papuan

Islands. Dr. Guillemard also exhibited a very fine series of *Paradiseida* obtained during the yacht's voyage.

Mr. G. A. Boulenger read a paper containing a description of the German River-Frog, *Rana esculenta*, var. *ridibunda*, Pallas.

Mr. P. L. Sclater read the description of a new species of *Icterus*, obtained by Mr. Hauxwell on the Upper Amazons, which he proposed to name *I. hauxwelli*.

A second paper by Mr. Sclater contained notes on the way in which *Lemur macaco* carries its young, as observed in a specimen living in the Society's Gardens.

Mr. A. D. Bartlett read some notes on the female Chimpanzee now living in the Society's Gardens, which he showed to be different from the ordinary Chimpanzee, and to be probably the *Troglodytes calvus* of Du Chaillu.

Dr. Gadow communicated a memoir by Miss Beatrice Lindsay, of Girton College, Cambridge, upon the avian sternum. The different theories held as to the origin of the sternum having been reviewed, the author proceeded, after an explanation of the various types of structure examined, to give an account of her own views. Miss Lindsay came to the conclusion that the keel is an apophysis of the two halves of the sternum, and is not produced by the clavicles or any other parts belonging to the shoulder-girdle; also that the part of the sternum whereof the keel is an outgrowth is itself of secondary origin, and that the various processes of the sternum are produced by addition and not by resorption of bony matter.

Col. J. Biddulph read a paper on the Rocky-Mountain Sheep, in reference to the new geographical race lately named by Mr. Nelson *Ovis montana dalli*, and confirming the view that there are two distinct types or races of this sheep in North America.

This meeting closes the present session. The next session (1885-86) will commence in November, 1885.—P. L. SCLATER, *Secretary*.

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## NOTICES OF NEW BOOKS.

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*Russian Central Asia, including Kuldja, Bokhara, Khiva, and Merv.* By HENRY LANSDALL, D.D., F.R.G.S. 2 vols. 8vo. London: Sampson Low & Co., 1885.

THIS is a general book of travels, but there are many chapters in it which will be interesting to naturalists, especially those forming Appendix A to the second volume. For, although the

author does not profess any special knowledge of natural history, and in this respect has relied much on the observations of others, he has, nevertheless, brought together a good deal of information touching the zoology and botany of Russian Central Asia, which could only be gained by reference to a number of scattered volumes, some of which are in German and others in Russian. On the other hand, wherever he could collect any information on the subject elucidating the fauna and flora of the district through which he travelled, he did not fail to note it in his journal.

Briefly speaking, Dr. Lansdell travelled some 12,000 miles through Western Siberia to Kuldja; thence through Russian Turkistan and the Kirghese Steppes to Tashkend, Khokand, and Samarkand. Crossing into Bokhara, he travelled through the Khanate as guest of the Emir, floated 300 miles down the Oxus to Khiva, and then continued by a new route across the land of the Turcomans and north of Merv to Krasnovodsk, and so across the Caspian to Baku, and thence by rail to Tiflis, and so home.

The main object of this long journey was to distribute the Scriptures in prisons and hospitals, as well as generally *en route*, for which purpose he was furnished with translations in all the languages for which he was likely to find readers. In carrying out this object he naturally had both leisure and opportunity to enquire into the manners and customs of the various races met with, their mode of life, government, religion, and so forth, the description of which, with the geographical details of his route, occupies the greater part of the two bulky volumes before us, the remainder being taken up with Russian history, and incidentally, as we have said, with natural history, when opportunity has offered.

Journeying from Omsk to Semipolatsk, Dr. Lansdell thus describes the character of a Russian steppe (vol. i. p. 68):—

“We were now well on the steppe, whose straight unbroken horizon so frequently reminds one of the ocean. The soil is yielding, stoneless, and sandy, thus making the smoothest of roads, on which our horses dashed along. The country is nearly treeless, and the ground almost without vegetation, so that one had only to picture the surface covered with snow to see the necessity for the roadside wickerwork erections to mark the route in winter. We were crossing, in the month of August, this steppe,



parched by the summer sun ; but Dr. Finsch, who, in 1876, travelled over the same route in spring, speaks with more appreciation of its appearance. The steppe is not, indeed, a grass-covered flat, but the verdure is found only in patches, and then forms no turf, but grows, like the bunch or buffalo grass of the prairie, in separate clumps, although the steppe grass is longer. For great distances the steppe is covered with thickets of the *Spiræa*, or Meadowsweet.

Here and there, too, are gooseberry bushes, intermixed with feeble-looking birches, generally less than five feet high, whilst everywhere, when the road approaches the Irtish, we catch sight, on the opposite bank, of a more or less extensive vegetation of well-grown trees, such as willows, poplars, oaks, birches and pines. Alongside the river are frequently found hill-like chains of sand resembling downs, with wild oats and other grasses. Another characteristic of the steppe is seen in numerous ponds and lakes, unconnected by streams. They are, for the most part, isolated, and what is more remarkable, are in some cases filled with sweet, in others with salt, or brackish, water. Thus it happens in their neighbourhood that one meets now with sandy downs, and then with those deposits of salt that have been caused by evaporation, and frequently impart to the ground the appearance of hoarfrost or snow. In such quarters the appropriate salt flora is met with. It is not until the end of April that this steppe, near Omsk, begins to present a verdant appearance, and then, amongst the first harbingers of spring, are seen the beautiful blue Anemone, a yellow *Draba*, the universal Ranunculus, or buttercup, and members of the garlic family. . . . . With improved vegetation came a greater development of animal life, and I noticed the appearance of Hooded Crows, Magpies, various kinds of Hawks, and birds that I took to be Plovers. In crossing the Irtish steppe in spring, Dr. Finsch frequently met with Whooper Swans (*Cygnus musicus*) in flocks, sometimes of twenty or more, which he supposed to breed in the locality.

Both Winter and Black-headed Gulls (*Larus canus* and *ridibundus*) are frequently seen soaring above the deserted steppe, far, very far from water, looking, doubtless, for insects and worms as food. The Oystercatcher (*Œmatopus ostralegus*) is also occasionally met with, and the Yellow-headed Wagtail (*Motacilla citreola*). In the sandy banks of the Irtish are found numerous nest-holes of Sand Martins (*Cotile riparia*), which nest here in common with the House Martin (*Chelidon urbica*). These last, however, do not excavate nest-tunnels, but only shallow holes."

Here we venture to think Dr. Lansdell is mistaken. The birds, which he mistook for *Chelidon urbica* were doubtless

*C. lagopoda*, Pallas, which do not differ in their mode of nidification from our well-known House Martin.

"In April," he continues, "White-winged Larks (*Alauda sibirica*) show themselves in large flights, and the sweet trill is heard of the Sky Lark (*Alauda arvensis*), notwithstanding the frequent showers of snow and hail. By erecting boxes on poles, the Cossacks provide nesting-places for House and Tree Sparrows, and sometimes Starlings; but Magpies, Crows, Jackdaws, and Ravens, have to make their own arrangements for nests on the bush-like dwarf birches. I noticed about the villages of the steppe, as I constantly did through Siberia in 1879, a variety of Hawks and Kites. Of the Brahminy Kite (*Milvus govinda*) several specimens are seen.

The charming Red-footed Falcon (*Falco vespertinus*) holds its quarters particularly along the telegraph line, that possesses, I have frequently noticed in treeless regions, so much attraction for all birds of prey, the wires and poles being so readily adapted by them for resting points. On the poles are often seen perched the Osprey (*Pandion haliaetus*), and further south other Eagles. The Lesser Kestrel (*Falco cenchris*) is not rare. Now and again a Little Bustard (*Otis tetrax*) dashes by the traveller with heavy wing, soon, however, to settle again, as also does its larger congener (*Otis tarda*). On the downs of the Irtysh is seen the Willow Ptarmigan (*Lagopus albus*), and keeping near and amongst the herds of cattle, as is their wont, are to be espied flocks of sociable Plovers (*Chettusia gregaria*)."

The two principal lakes of the province of Semipalatinsk are the Balkhash, a portion of which was sighted by our traveller, and the Zaisan (meaning "noble"), some fifty-six miles long by thirteen miles wide, with an area of 700 square miles—a noble lake indeed. Its waters, which receive the drainage of ten rivers, are "transparent, fresh, soft, and good for cooking purposes, but of a reddish colour in deep pools." Amongst the fish taken here are the Sturgeon, Sterlet, and Nelma Salmon, the *Taimen* (identified as *Salmo fluvialis*, and said to attain a weight of 144 lbs.), Trout (*Salmo lenæ*), Pike, Roach, Perch, Carp, and Burbot.

Except for fishing and hunting there is no navigation on Lake Zaisan, and there are few habitations on its banks. In the reeds around are numerous Wild Boars (which feed on the roots of *Arundo calamagrestis*), Otters, and Saiga Antelopes, whilst in the immediate neighbourhood of the lake are to be found Swans, Geese, Ducks, Cormorants, Pelicans, Snipe, Plovers, Bustards, and Pheasants.

Another grand lake most attractive to the naturalist is the Ala-Kul, or "variegated lake," the third largest in Central Asia. It is thought at one time to have been joined to the Balkhash, but is now an entirely distinct basin without effluent. Dr. Finsch, in his 'Reise nach West Siberien im Jahre 1876' (Berlin, 1879), has given a good account of the fauna of this lake district, of which Dr. Lansdell, not being a practised naturalist, has availed himself (pp. 146—150) at too great a length to be here quoted. The most remarkable bird noted there was the Black Lark (*Alauda yeltoniensis*), whose uniform velvet-black plumage, pale yellow beak, and large size made it very conspicuous. It was observed sitting on stones by the roadside, or perching on bushes, with drooping wings and tail erect, singing there as well as in the air. When in flight it appeared even more remarkable. "Clapping together the points of its wings, and whipping about, now regularly, and then in an irregular manner, its flight may be likened to that of a bat."

In the shallow pools were observed Cranes, Stilts, Avocets, and Lapwings, and on the lake itself gulls (*Larus ridibundus* and *ichthyæetus*), and ducks of various species, including the Pintail and Gadwall, Common and Ruddy Sheldrakes, and Red-crested Pochard (*Fuligula rufina*).

With regard to fish, Dr. Finsch ascertained the presence of a large Perch (*Perca schrenckii*, Kessler), growing to the length of a foot or more, a Barbel (*Schizothorax orientalis*, Kessler), and two species of Loach.

Amongst the Mollusca picked up along the sandy banks of the lake were specimens of *Limnæa*, *Planorbis*, *Bithynia*, and *Valvata*.

The more noticeable mammals of the Ala-kul district were the Arctic Hare, the Kura-biruk Antelope (*Antelope subgutturosa*), the Ibex (*Capra sibirica*), and the Wild Ass. The last named is found in several parts of the Central Asian steppes, and is probably the species described by Pallas as *Equus hemionus*, distinguishable from the Persian *Equus onager* by its sharp ears and by the absence of the black cross stripe on the shoulders. The Kiang (*Equus kiang*) of Upper Thibet, though nearly related, is a larger animal.

In the province of Semirechia numerous wild animals were met with, which are noticed on pages 160, 161 of vol. i., chiefly

by the light of Dr. Severtsoff's paper on the Mammals of Turkestan, translated in the 'Annals of Natural History' for 1876. Of three species of Marten as well as of a Lynx Dr. Lansdell was able to secure in Vernoe the skins and skeletons, all of which are now in the British Museum.

At p. 245 of vol. i. he gives a figure (here reproduced) of that fine Central Asian Sheep, *Ovis polii*, named after its discoverer, Marco Polo. Round the neck there is a pure white mane, and the light greyish brown of the back and sides shades off into white towards the belly, the legs being brown. It inhabits high hilly plains and runs with great speed. Severtsoff gives its length as 6 ft. 9 in. from nose to tail; height at shoulder, 3 ft.



THIAN-SHAN SHEEP.

10 in.; length of horn, 4 ft. 9 in.; distance between tips of horns, 3 ft. 6 in.; and length of skull, 1 ft. 2 in. Col. Prejevalsky, who shot some fine specimens on the Yuldus plateau, where he fell in with herds of thirty or forty, gives the measurements of the horns of the old males which he obtained as 4 ft. 8 in., with a thickness of 18 in. at the base. Its weight is enormous. Severtsoff shot an old ram that proved too heavy for a camel to carry. This camel took four hours to go three miles, and was obliged to lie down several times on the way. At low elevations a camel can carry 600 lbs. with ease, and on lofty plains where the air is rarefied



400 or 450 lbs.; so that the weight of this particular specimen was estimated at about 600 lbs. At the Kuldja consulate, as also at Tashkend, Dr. Lansdell saw specimens of the skull and horns of this fine wild sheep.

The Dong, or Wild Yak (*Bos grunniens*), has till of late years only been known by rumour. It is a native of Thibet and high Asia, between the Altai and the Himalayas. Col. Prejavelsky shot one south of Koko Nor, six feet high and eleven feet in length, exclusive of tail, which was three feet more. The cow Yak is much inferior in size to the bull, and her horns are small. The animal is capable of domestication, and a variety of crosses with domestic cattle is produced.



A THIBETAN COW.

At page 143 of vol. ii. Dr. Lansdell gives a figure (here reproduced) of a Thibetan Cow of a supposed cross-breed introduced by the Russians into Turkestan. The Yaks pasture in the coldest parts of Thibet and the eastern portion of Bokhara, upon short herbage peculiar to mountain tops and bleak plains. It remains therefore to be seen whether this animal will thrive in the lowlands.

So far, we have been gleaning information touching the fauna of Central Asia from remarks scattered here and there throughout Dr. Lansdell's first volume. The most scientific portion of his

work, however, from a zoological point of view, will be found in an Appendix to the second volume (pp. 506—617), wherein, through the co-operation of certain well-known specialists whose aid he has been fortunate in obtaining, Dr. Lansdell has been enabled to give systematic lists of the animals, both vertebrate and invertebrate, which have been ascertained to occur in the country through which he travelled. Thus the lists of Mammalia, Aves, Reptilia, and Amphibia are vouched for by Messrs. Severtsoff, Fedchenko, and Sabanaeff; Herr Kessler supplies an account of the Fishes; the Mollusca are dealt with by Dr. von Martens, and the Crustacea by Dr. Ulianin; while the different orders of Insects are reviewed by such well-known entomologists as Messrs. Solsky, De Saussure, Gustav Mayr, Erschoff, and Alpheraky.

Thus it will be seen that Dr. Lansdell has spared no pains to make his work as complete as possible, even in regard to matters on which he does not profess to have any special knowledge; and should it be urged that in regard to Zoology he has not given us anything very original or very new, he must at least have the credit of having brought together within a comparatively limited space a good deal of useful information about a little-known part of the world, which could otherwise be only acquired by reference to a great many different works in different languages.

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*A History of British Birds.* By WILLIAM YARRELL. Fourth Edition. By ALFRED NEWTON, M.A., F.R.S., and HOWARD SAUNDERS, F.L.S., F.Z.S. 4 vols. 8vo. London: Van Voorst, 1885.

THE Editors of the new edition of this standard work, as well as that portion of the reading public for whose use and benefit it is intended, are alike to be congratulated upon its recent completion. The last part (part xxx.) has at length appeared, with index, preface, and title-pages, and the four volumes may be now bound and put upon the book-shelf as the leading text-book on British Ornithology.

To attempt anything like a general criticism of the whole work would occupy many more pages than could be here afforded, and we must therefore abandon any such idea. Not that we

have any criticism to offer which could in any sense of the word be considered adverse, but it would have been a pleasure, did space permit, to review such portions of the work as deal with what ornithologists would call "moot points," and indicate perhaps here and there certain matters of interest upon which further particulars might have been desirable.

If we have one cause for regret, however, it is to see the way in which it has been thought necessary to alter the classification to which we have been so long accustomed, and which we have had, so to say, "at our fingers' ends." The result is that it is now, with four volumes, much more troublesome to find a given species, which we could formerly always turn to without any reference to the index. Obviously, perhaps necessarily, it has been thought desirable, where practicable, to indicate the relationship of groups by placing them in juxtaposition; hence one is not surprised to find in this new edition the Plovers placed near the Sandpipers in the order *Limicola*, and the Sandpipers near the *Gaviæ* or Gulls. But then arises a difficulty where to locate the *Herodiones*. It seems to us that the Herons and Storks are quite as much out of place in their new position, between the Divers and the Geese, as they were in former editions, between the Plovers and Sandpipers. They would appear more naturally, we think, between the *Rallidæ* and the *Gruidæ*, for in some respects there is as much resemblance between the Rails and Little Bitterns as there is between the Herons and the Cranes. This would not interfere with the Cranes being placed next to the Bustards, to which family they are more nearly allied than they are to the Herons. But it is much easier to find fault with the new classification than to propose a better, and it cannot be said that Mr. Saunders's view, as defended in his "Preface" (p. vii), is unreasonable.

A noteworthy feature in the present edition is the large number of species (many of them figured) which have been introduced as new to the British avifauna since the publication of the third edition in 1856. The omission of certain New World *Passeres*, which, as Mr. Saunders says (Preface, p. viii), "cannot reasonably be supposed to have reached our shores without human agency," is no doubt wise. The rejection of a few others which appear to us to have been admitted into the list of British Birds upon the very slenderest, not to say

unsatisfactory, evidence, might also have been sound policy; but one is naturally unwilling to dismiss from view species which have been not only described but figured in former editions of the work.

We have been struck by the very few "errata" noted by the Editors, another instance of the care which has been exercised in the revision of the proof-sheets; and, if we may say so without appearing egotistical, we are gratified to find from the frequent reference which is made to the pages of 'The Zoologist' how useful this Journal has been in the preparation of what must be regarded, at least for some time to come, as the best work of reference on British Birds.

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*Die Pilzthiere oder Schleimpilze.* Von Dr. W. ZOPF. Breslau, 1885. Extracted from the 'Encyclopædie de Naturwissenschaften.

THE title of this work, which, when translated into the language of the systematist, is the Mycetozoa or Myxomycetes, and the fact that a copy of it has been sent to this Journal for review, afford another proof that the best conception as to the prime classification of material things is becoming more widely adopted; that classification, which was adopted by Linnæus in his earlier, but altered in his later, works, was the division of things into mineral or *Inorganisata*, and biological or *Organisata*. It has again come into fashion with the recent advances in our knowledge, and might, indeed, have been foreseen by the prophetic eye the moment that there was established the identity of the "protoplasm" of vegetable and the "sarcode" of animal cells.

Dr. Zopf is so well known as one of the most accurate of modern workers among the lowest *Organisata* that it is only necessary to mention the production of this carefully-compiled and well-illustrated handbook; a detailed notice of its contents would, we think, be better found in a journal of Botany than of Zoology; practical considerations as well as theoretic views, however just, must always be borne in mind by editors of periodicals.

